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ABSTRACT

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LINGUISTIC CHARACTERISTICS IN THE WRITTEN LANGUAGE DEVELOPMENT OF NATIVE SPANISH-SPEAKING STUDENTS*

Ema T. Paviolo

ABSTRACT

This investigation provides descriptive information about the developmental characteristics of syntactic and morphological structures found in the written Spanish language of native Spanish-speaking students in fourth to ninth grades. A sample population composed of 34 male and 56 female Spanish-speaking students was randomly selected from two Puerto Rican schools. Two stimulus pictures were chosen to elicit a 200-word writing sample. Sixty-three linguistic variables were considered in the preliminary stages of the present study to provide linguistic information about written language development in Spanish. Because some of the variables referred to the same function (i.e., overlapped to a certain extent), the original number was reduced to 21 syntactic and morphological linguistic attributes. Only those that were most essential and independent of each other remained as the final variables.

The degree to which these 21 structural linguistic variables were associated with the students' grade levels was investigated. An analysis of the mean frequency scores of these variables based on their correlation with grade level showed those linguistic characteristics that concomi-

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tantly increased or decreased in length and complexity according to grades. Results of this investigation indicated that Spanish-speaking students in Puerto Rico wrote fewer clauses and T-units as they advanced in grade levels, increased the number of words in the remaining clauses by sentence-combining and sentence-embedding transformations, used more structure words than content words, and reduced or de-emphasized the relative importance between clauses by converting more main clauses into subordinate clauses as their grade level increased.

INTRODUCTION

There is now an increasing concern for the educational progress of students of limited English proficiency who are receiving instruction in their native languages. In most of the schools where bilingual education programs are offered for the Spanish-speaking population, practice of the basic language skills--listening, speaking, reading, and writing--are performed both in the students' native language and in English. In order to maintain and improve the students' level of competence in the second language, English, it is also necessary to enable them to raise their level of competence in their native language, Spanish, as well. The ideal of bilingual education is to bring the native Spanish-speaking students' control of their mother tongue up to the level of a monolingual of comparable age and education while raising the level of their linguistic ability in the second language as close as possible to that of the comparable native speaker of English.

This investigation was set up to establish norms of language development for native Spanish-speakers in a monolingual setting

so that these norms could also serve as base-line data for educators and linguists concerned with bilingual students' progress in their native language. A study revealing developmental patterns of written language for Spanish-speaking students in elementary and intermediate grades will be able to provide classroom teachers and language researchers with the necessary information to identify the most important linguistic variables characteristic of linguistic maturity among native speakers.

Researchers have been investigating the development of syntax in English, trying to find objective and measurable ways to describe the developmental changes taking place in students' written language throughout the school years. Hunt (1965) investigated the linguistic characteristics of writers in an older grade, compared to those of writers in earlier grades. He defined these characteristics developed in older grades as "syntactic maturity." Hunt studied the writing of 18 children in grades four, eight, and twelve to develop an index that could best predict "syntactic maturity." The subject matter in this study was whatever the students wrote in their English classes. Clause length, frequency of subordinate clauses, and sentence length were examined as possible indices.

After analyzing these indices and re-assessing earlier ones, Hunt came up with a measure called a "T-unit," consisting of a main clause and any subordinate clauses attached to it. A "T-unit" (minimal terminal unit) was chosen to represent the shortest allowable grammatical units that can still be sentences. With this measure, the inconsistencies that could arise from subjective decisions about definition of sentences and clauses were eliminated. Mean words per

sentence, mean T-units per sentence, mean words per T-unit, mean clauses per T-unit, and mean words per clause were all calculated; and various statistical tests, among them the contingency co-efficient, determined the best discriminators of syntactic maturity among these ratios. Hunt observed that with increased chronological maturity, there was a noticeable increase in words per clause, clauses per T-unit, words per T-unit, and words per sentence.

In a more recent study, Hunt (1970) analyzed the written language of children in grades four, six, eight, ten, and twelve with varying levels of ability within each grade level. He supplemented his earlier study (1965) by controlling the content of the subjects' writing. He also analyzed the writing of several adults and professional writers. The findings of this study supported the conclusions of Hunt's early study of free writing (1965), i.e., older groups tended to write longer sentences than younger groups, the main clause coordination index decreased at every grade level, the subordinate clause index increased to grade eight, and clause length was found to show a close correlation with age and ability group. The concept of the T-unit was further investigated and incorporated into research (O'Donnell *et al.*, 1967; Dillon, 1972; Dixon, 1972; Fox, 1972; Golub, 1973).

In spite of the active research on the development of English syntax in the written language, research in Spanish was primarily focused on measurirg developmental stages of only the oral native language among pre-school children (González, 1970; Brisk, 1972; Toronto, 1972) or it consisted of translations of English tests (Kernan and Blount, 1966). The use of written language by native

Spanish speakers prior to the present study was still largely uninvestigated. This study, however, has now provided quantitative and qualitative linguistic information about the developmental characteristics of the syntactic and morphological structures found in the written Spanish of native Spanish-speaking students in the elementary and intermediate school years.

METHOD

Subjects

The present investigation was conducted in two schools of Arecibo, Puerto Rico. Fifteen students were randomly selected in each grade level, from fourth to ninth grades in the Elementary School, Dolores Gómez, and Intermediate Schools, Jefferson and Luis Muñoz Rivera. The total population sample was 90 students--34 males and 56 females.

Stimulus Materials

A pilot study was first conducted among Spanish-speaking students attending bilingual education programs in two schools of Pennsylvania in order to select the appropriate stimulus materials for eliciting writing samples. These schools were selected because their population consisted mostly of Spanish-speaking students of Puerto Rican origin. On the basis of demonstrations of interest and length of writing samples, two stimulus pictures were chosen from among 19 black-and-white photographs presented to a randomly selected group of 34 Puerto Rican bilingual students from fourth to ninth grades. These two pictures were: a photograph of three people

fishing from a boat in the middle of a river and a photograph of a small boy ready to blow out some candles on his birthday cake.

Procedure

Students in each grade level, fourth to ninth, attending regular classes in Puerto Rican schools, were given individual sheets of paper with a black-and-white drawing containing each one of the pictures selected from the pilot study. The two pictures were shown on two consecutive days. Students were instructed to write a story about each picture. They were also encouraged to empathize or personally relate to the characters in the pictures by describing different emotions they felt toward them. Some general questions were asked when it was considered necessary in order to help students focus their attention on what was happening in the pictures. Students were asked to complete at least one side of a legal-sized sheet of paper. The writing of each story took approximately one hour.

Preliminary stages for the implementation of the present investigation included a selection of a certain number of linguistic variables that would provide information about Spanish-speaking students' writing performance. The choice of the linguistic variables to be investigated was determined by selected categories from a previous study of written language discourse in English (Golub and Frederick, 1971) and interviews with panels of experts consisting of university professors, graduate students, and native Spanish speakers. Only those variables relevant to the Spanish language were retained from the study on English syntax. The experts were consulted on the appropriateness of the selection of the linguistic

variables. Sixty-three syntactic and morphological structures were originally considered. Because some of the variables overlapped, the total number of linguistic structures was reduced to only those most essential and independent of each other.

Once the compositions were collected, they were read by the investigator; and the occurrence of 21 linguistic variables was tallied in the two different writing samples, giving a frequency of occurrence for an overall 200-word sample.

RESULTS

In order to discover patterns of development and structural growth in the written Spanish of native Spanish-speaking students, the mean scores of the 21 syntactic and morphological variables were correlated with the students' grade levels. Results are shown in Table 1. Figures 1, 2, and 3 show the positive, negative, and non-significant correlations between the variables and students' grade levels. An analysis of the developmental patterns of the linguistic structures showed that the trends indicated in the figures (incremental or decremental) were characterized by an increase or decrease in the mean frequency scores of the linguistic indicators closely related to the students' grade levels.

Sentence adverbials, structure words, compound predicates, adjectivals, words per main, and subordinate clauses were significant and positively correlated with grade level in grades four to nine as shown in Figure 1. Words per T-unit and clauses per T-unit only correlated significantly up to eighth grade. An important observation to be made is that the leveling-off point in the increase

Table 1

CORRELATIONS OF LINGUISTIC VARIABLE MEANS WITH GRADE LEVELS IN FOURTH TO NINTH GRADES, SCHOOL DISTRICT 1, ARECIBO, PUERTO RICO

Number of Variable	Name of Variable	Correlation Co-efficient
1	Word Order	-.17
2	Form and Agreement	-.85*
3	Number of Words	-.31
4	Content Words	-.81*
5	Structure Words	.95**
6	Content Words per Structure Words	.90**
7	Verbs of Double and Triple Predicate	.25
8	Compound Predicates	.84*
9	T-units	.89**
10	Coordinated T-units	-.93**
11	Words per T-unit	.74
12	Main and Subordinate Clauses	-.93**
13	Clauses per T-unit	.61
14	Subordinate Clauses	.59
15	Words per Main Clause	.99**
16	Words per Subordinate Clause	.93*
17	Sentence Adverbials	.97**
18	Adverbials	.50
19	Adjectivals	.86*
20	Prepositional Phrases	.54
21	Nominalizations	.08

*$p < .05$

**$p < .01$

Figure 1

LINGUISTIC VARIABLES THAT WERE SIGNIFICANT POSITIVELY CORRELATED WITH SPANISH-SPEAKING STUDENTS' GRADE LEVELS IN FOURTH TO NINTH GRADES, SCHOOL DISTRICT 1, ARECIBO, PUERTO RICO

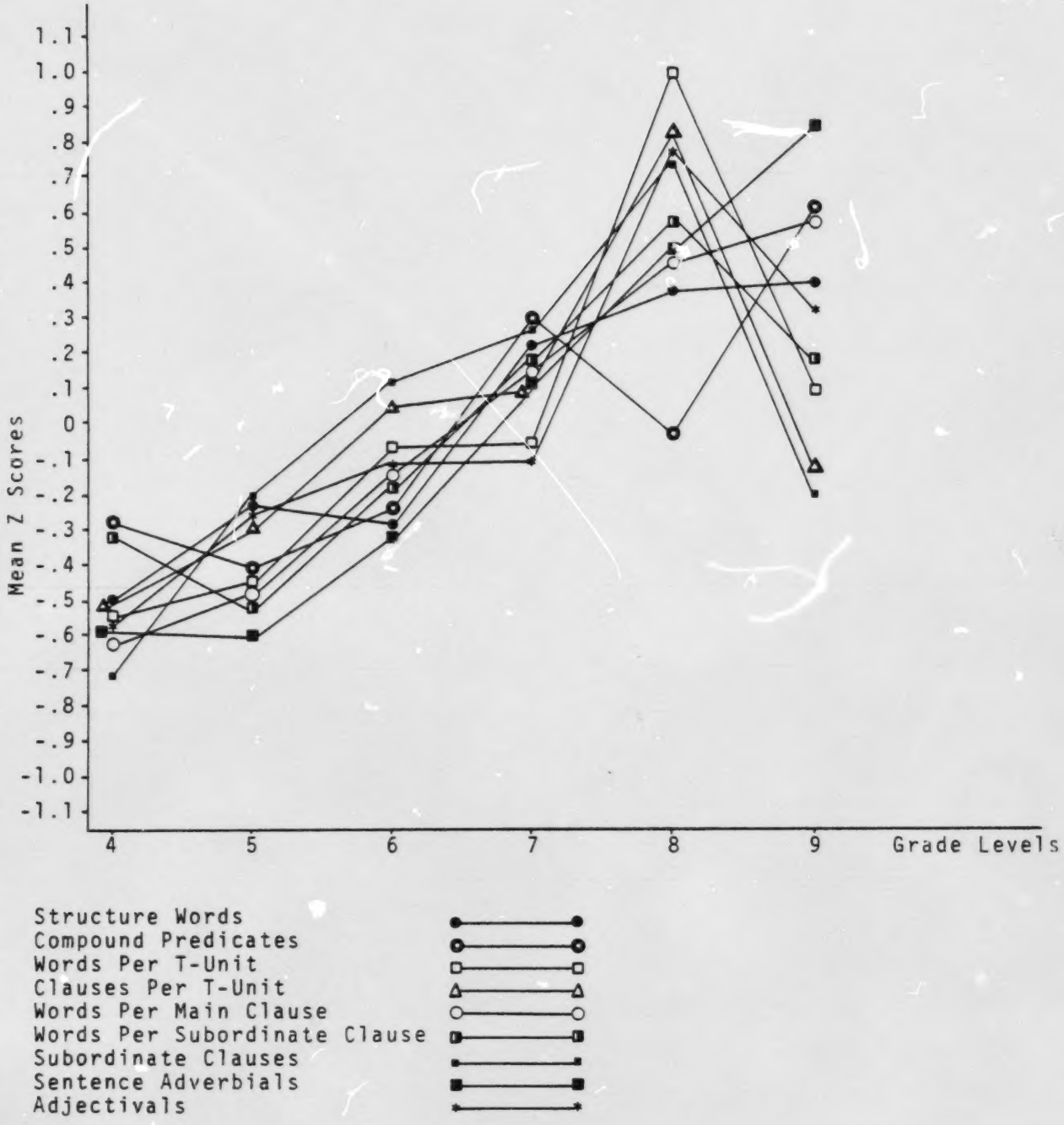


Figure 2

LINGUISTIC VARIABLES THAT WERE SIGNIFICANT NEGATIVELY CORRELATED WITH SPANISH-SPEAKING STUDENTS' GRADE LEVELS IN FOURTH TO NINTH GRADES SCHOOL DISTRICT 1, ARECIBO, PUERTO RICO

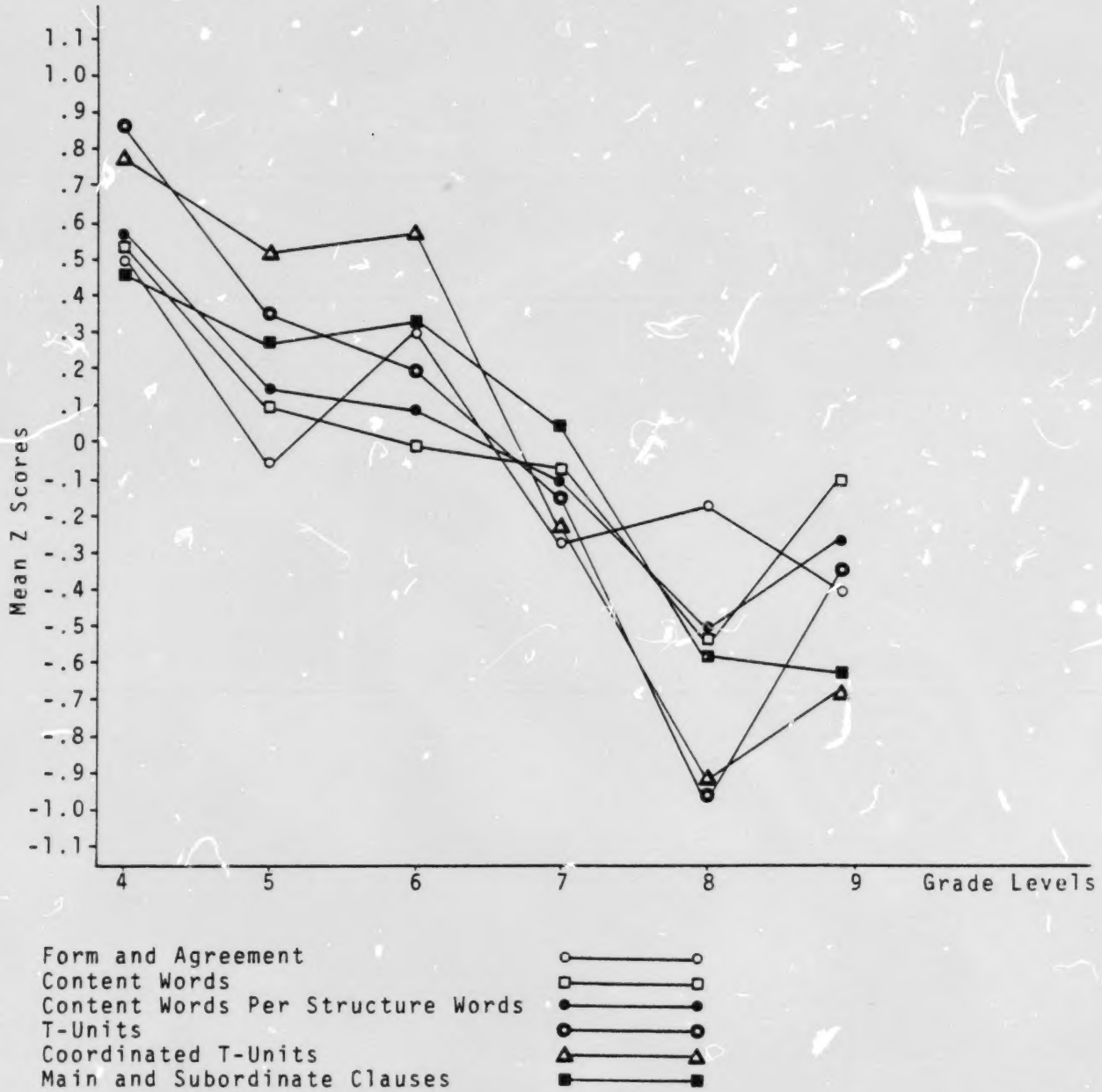
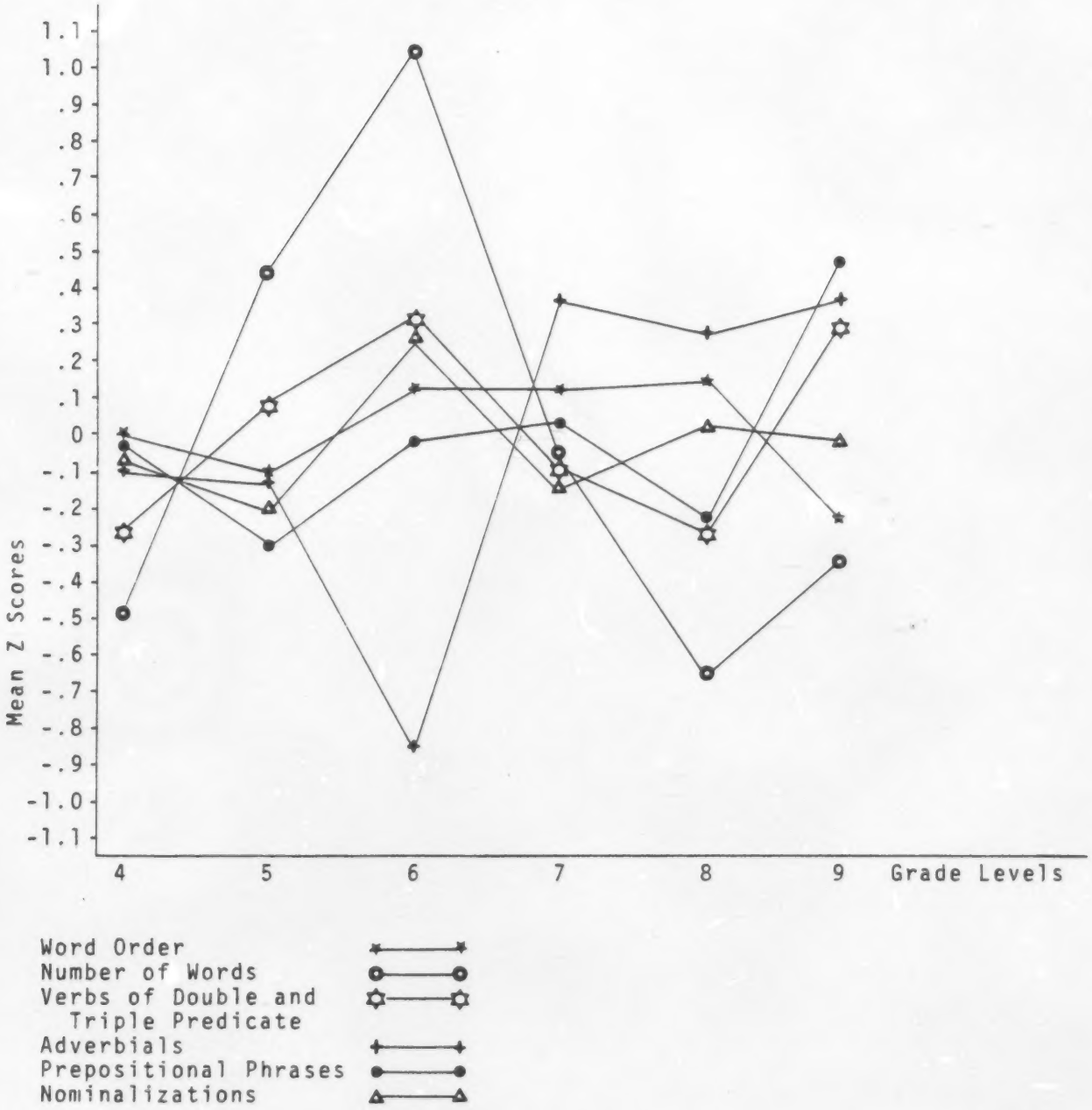


Figure 3

LINGUISTIC VARIABLES THAT WERE NON-SIGNIFICANT CORRELATED WITH SPANISH-SPEAKING STUDENTS' GRADE LEVELS IN FOURTH TO NINTH GRADES, SCHOOL DISTRICT 1, ARECIBO, PUERTO RICO



of several of the linguistic indicators (words per subordinate clause, sentence adverbials, adjectivals, words per T-unit, and clauses per T-unit) fell right after eighth grade. Since this study investigated only the written language of Spanish-speaking students to ninth grade and several of the linguistic structures analyzed showed an abrupt halt or decrease in the frequency growth at the next-to-last year of junior high level, further research is needed to be able to determine whether the last three years of senior high level have any effect on the increase or decrease of the frequency of these linguistic indicators.

Average number of words per main clause progressively increased through the years. This was a significant indication of the students' development of a more complex written structural system based on syntactic transformations and embeddings. Main clauses among seventh to ninth graders were characterized by the presence of appositives, elliptical combinations, and adjectivals, through which the writers expressed their ability to draw upon a wide variety of syntactic resources when they were constructing sentences. This older group of students seemed to take advantage of many recursive embedding rules in order to consolidate sentences and reduce them to fewer clauses. Such devices were scarce among early elementary school children whose only technique for lengthening sentences was excessive coordination of nouns and clauses. The following samples illustrate these observations:

From fourth- to sixth-grade Spanish written language samples:

> *El más mayor sabía nadar y se tiró al agua y fue a buscar ayuda y el papá estaba impaciente.*

Y fueron a la mesa a comer los pescados y los pescados estaban riquísimos y tostaditos y los pescados eran grandes.

Y el niño seguía mirando las orillas del mar, los montes, el mar, las aves, las palomas, el cielo, y nubes.

Se retrató con los papás y con los hermanos y con los amigos y con la maestra de cuarto grado.

Mario puso una bolsa de papas, Raúl puso una bolsa de tacos, Edel trajo un paquete de Royal Crown, *Raymond trajo una caja de mantecado, y la maestra trajo papitas y refresco.*

From seventh- to ninth-grade Spanish written language samples:

Nuestra hora de partida era a las 6:00 A.M., y el lugar escogido para la pesca, el mar.

Tomás, sentado en la borda, observaba el hermoso paisaje del inmenso lago.

Los pescadores tienen mucha experiencia. Seis años de haber luchado contra los peligros del mar los va haciendo más valientes en su diario trabajo.

Ya va aclarando el día, y los tres, juntos como siempre, se van a la playa en busca de su botecito, uno de sus pocos bienes materiales y su recurso para ganarse la vida honradamente.

Entre oir la radio, comer y pescar, se pasó muy rápido el día.

El día siguiente, sábado, mi madre, como de costumbre, salió a trabajar.

A closer look at the increase in the use of structural words among native Spanish-speaking students indicated that it was closely related to the students' ability to use transitional devices such as relative pronouns and relative adverbs and to their ability to substitute more pronouns for corresponding nouns as they progressed in their grade levels. Such was the case in the samples of these seventh, eighth, and ninth graders:

Héctor era el que iba a romper la piñata.

Fuimos a la piscina, una de las tres que allí hay.

Tan pronto como llegó la quinceañera, se abrió el baile.

Fue por la mañana cuando salimos.

Yo lo que quería era felicidad.

Tenía un resfriado, por lo cual no pude disfrutar de la piscina.

Fue entonces que mis padres nos dijeron que íbamos a pescar.

Después que compraron todo, salieron en busca de su carnada.

Cuando llegaron a la casa, sus padres los felicitaron porque pescaron dos martín y unas langostas.

Attempts to start discriminating between main and subordinate clauses were present in samples of fifth and sixth graders. Occasionally the stylistic pattern of the sentences somewhat obscured their meaning:

Yo me fijo que cada vez que uno cumple años cuando tú vayas a cumplir todos los años que cumples te ponen en el bizcocho unas velas.

El día de mi cumpleaños que yo cumplí siete años que fue el 10 de junio fue el más alegre de mi vida.

An inability to use the proper devices to transform main clauses into subordinate clauses was demonstrated in samples of fourth graders, such as:

Dijo quién eres tú y ella me dijo quieres almorzar con nosotros.

Repartieron las bombas. En una bomba había un papel y en ese papel había un premio. El premio se lo ganó un amigo mío.

As for the trend showing a decrease in the means of certain linguistic indicators as a function of grade shown in Figure 2, the most apparent for their gradual decrease were the number of T-units and coordinated T-units. The higher the grade level of the students, the fewer the frequency of T-units and coordinated T-units in their written essays. Early grade students combined clauses together by an excessive use of coordination, often resulting in lexical redundancy:

Ese día fue lleno de sol y ese sol era brillante.

Tirábamos hielo y tirabamos platos de cartón.

Gozamos en cantidad y bailamos en cantidad.

Los padres y hermanos le cantaron una canción y Javier se puso contento y Javier sopló las velas y lloró de alegría.

This tendency greatly decreased as the students advanced in grades; apparently the reduction was related to the students' critical understanding of the status of main and subordinate clauses within sentences.

Deviations present in the students' essays related to grammatical agreement between subjects and verbs, between nouns and modifiers, and direct and indirect objects, and were also inversely related to the students' grade levels. As the students progressed through the school years and received more instruction in these areas, fewer mistakes of this nature appeared in their writing.

A decrease in the frequency of content words and in the ratio of content words per structure words came with an increase in the students' grade levels. It was also proportional to a marked increase in the frequency of structure words, as was previously indicated. Frequency of main and subordinate clauses gradually decreased as the students' grade levels increased. The significant negative correlation between number of clauses and grade level might be explained by the fact that students in higher grades tended to write fewer clauses because of their ability to use more compound verbs, adverbials, and elliptical combinations, therefore increasing the length of the clauses they wrote, as in the following examples:

Todo el mundo reía y gozaba.

Nos pasamos tumbando aguacates y comiendo mangoses y chinas.

Una vez, por celebrarlo, me convirtieron en un bizcocho ambulante.

El año pasado lo pasé bien junto con mi familia, y como siempre, sin hacer nada en casa.

Luego de descansar un rato, continuamos nuestra pesca.

Pero volviendo al siglo 20, en la pesca se usan muchos utensilios más modernos como el hilo de nilón, el anzuelo, y por supuesto, la caña de pescar.

Con precaución de conseguir muchos peces para las visitas que vienen más tarde, fue a buscar hielo.

Examples such as: *Se montó en los columpios y se montó en los carritos locos.* and *Dio bizcocho y dio mantecado y dio refresco...* were representative of lower grade students, who still showed their inability to delete similar or identical verbs or prepositional phrases.

The last developmental pattern observed among the occurrences of the 21 linguistic variables showed a different trend, which was characterized by fluctuations of means through the grade levels. Figure 3 shows the linguistic structures present in this pattern: word order, number of words, verbs of double and triple predicates, adverbials, prepositional phrases, and nominalizations. All yielded no correlation with the criterion measure--grade level. Word order, i.e., syntactic deviations, did not decrease gradually as a function of grade as did the morphological deviations. It was speculated that, because of the increase in almost all of the other linguistic variables, especially clause length, there were also more opportunities for the students to misplace not only a word, but a whole clause. Such was the case in:

Mi mamá dice que ya yo estoy bastante grande (instead of "*...que yo ya estoy...*" or "*...que ya estoy...*").

El día fue el 25 de febrero de 1972 el día más feliz de toda mi vida (instead of "*El día más feliz de toda mi vida fue el ...*").

Este es un oficio o una diversión, el cual se practica... (instead of "*Este oficio o diversión se practica...*" or "*Este es un oficio o una diversión que se practica...*").

Los peces mueren porque el agua se contamina dicen (instead of "*Dicen que los peces...*").

The patterns for nominalizations, number of words, verbs of double and triple predicates, adverbs, and prepositional phrases were also erratic--an indication of their lack of relationship with grade level.

It was observed that older students tended to write fewer clauses and T-units in their written Spanish language samples, increased the number of words in the remaining clauses by sentence-combining transformations, used more content words than structure words, and reduced or de-emphasized the relative importance among clauses by converting more main clauses into subordinate clauses. These observations of the linguistic variables, based on their correlations with grade level, were drawn from the study of those structural and morphological variables that concomitantly increased or decreased in length and complexity according to grade level. The low correlations associated with several of the variables did not necessarily mean that their inclusion in the developmental process of written language was not valid. It only indicated that, as measured by grade level progression, the changes in the means of those linguistic variables were not systematic.

RELATIONSHIP OF THIS STUDY TO PREVIOUS STUDIES

As noted previously, Hunt's studies (1965; 1970) dealt with the analysis of syntactic maturity in the written samples of free or controlled writing of students and adults.

In Hunt's investigation of English as well as in this analysis of written Spanish, it was found that early grade students usually attained longer sentences by running T-units together without any coordination or punctuation in between or by overusing coordinators. The negative correlation that related it with grade level indicated a decrease in its frequency of appearance as a function of grade.

Corresponding with Hunt's findings in his study of the English language, results of this investigation showed that clause length did increase as the students got older and progressed syntactically and morphologically at different grade levels through successive years. Indication of leveling-off occurred in the present study of Spanish written language after eighth grade. In Hunt's study, however, it slowly but progressively continued until adulthood.

Although Hunt found no developmental trend in the mean of compound predicates, either between grades or ability groups, an incremental trend was found to be present among Spanish-speaking students' written samples in this study. Closely related to clause length in this investigation was T-unit length, or words per T-unit; and an increase in the words of either clause, main or subordinate, was reflected in a higher number of words per T-unit. Comparisons between Hunt's findings and the results of this study rendered similar conclusions: T-unit length steadily increased as a function of grade and age. By comparing average scores obtained in clause length

to those obtained in number of clauses per T-unit, it was possible to see whether the growth in the length of T-units was attained more through the students' ability to produce longer clauses or to their employing more subordinate clauses per T-unit. Hunt found that an increase of T-unit length among his students was due mainly to longer clause length and not to producing more subordinate clauses per T-unit. Results from this study supported Hunt's findings. When writing in their native language, Spanish-speaking students wrote longer T-units, principally by increasing the number of words per main clause. Although older students reduced a proportion of main clauses to subordinate clauses, there was an apparent plateau in this study's samples after grade eight, corroborating results of Hunt's study (1970) of controlled subject matter. When there was not such a control, Hunt (1965) found that the leveling-off occurred near grade twelve.

Evidence from Hunt's studies indicated that adjective clauses were among the ones that increased the most in number over several years. Findings of this study showed this not to be the case in the written language samples of native Spanish speakers. Nominal subordinate clauses were preferred by these students, and such clauses were also the ones to show a sharper increase through the years. Hunt noted that subject matter often dictated some of the grammatical structures used. Further individual comparisons between the two Spanish compositions analyzed in this study and perhaps the use of additional Spanish writing samples on different topics would be advisable before conclusions can be drawn concerning the effects of a variety of subject-matter (content) stimuli in the writing

of Spanish-speaking children.

To summarize, the main trends discovered in Hunt's studies of development of written English were also found in this study of written Spanish language, namely:

1. Clause length and T-unit index were significant indicators of language development.

2. T-unit length increased significantly through different grades by the addition of more subordinate clauses per T-unit by increasing clause length through sentence combinations or sentence-embedding transformations rather than just through the use of more content words.

A closer look at the lexical analysis of the compositions written in this study indicated that there are similarities between Mexican and Puerto Rican students in their difficulties with the plural formation of nouns ending in consonants. Kernan and Blount (1966) investigated plural formation in the derivation of actual words from nonsense words and found that the group had very little difficulty in the formation of the plurals, provided the nouns ended with a vowel. Mistakes commonly occurred with nouns ending in a consonant. A few instances of mistakes among Puerto Rican students showed the same difficulties in such words as *pez* and *feliz* (*pececes, felic*). Also similar to the findings of Kernan and Blount, Puerto Rican students in these samples preferred the diminutive forms ending in *-ito* (*mansito, amiguitos, tostaditos, hermanito, Pepito, ositos, pequeñito*). Kernan and Blount (1966) had found that Mexican children between five to twelve years of age did better in the formation of *-ar* verb tenses than *-er/ir*. Examples from this study attested to

this fact as well (*viendrá, superían, sapello, traieron*), although younger students also showed inconsistencies in the formation of *-ar* verb tenses (*cocinimos, turnearnos*). The word order of descriptive adjectives presented a particular problem to Puerto Rican children in this study (*el siguiente día, un gratuito alimento, una linda y verde cotorra, mi más reciente cumpleaños*).

Among common deviances in grammatical agreement and form, the most frequently incorrect form was the use of the nominalized indefinite article *uno* (*Un de los niños pescó un pez. De momento, sale unos de los vecinitos*). In verb complements, more mistakes were found among indirect object agreement than among direct object. (*Le voy a decir a papi y mami que les regalen a mi hermanita una muñequita que hable y camine y a mi hermanito una bicicleta. Me regalaron un reloj a mi y a mí hermano. La mamá les dijo levántate Tito. Muy contento le dijo a sus amigos....*) Brisk (1972) had found the following among the most common deviances in agreement transformations of Spanish-speaking kindergarten children in their oral language: gender and number agreement between noun and modifier, person-number agreement between subject and verb, gender and number agreement between pronouns and antecedents, and tense agreement between two verbs.

González (1970) found that single-word locative adverbs usually preceded temporal adverbs in the oral speech of Mexican-American children of two to five years of age. Brisk (1972) noted that locative adverbial phrases were the most frequently used by both groups of Mexican-American children--urban and rural. In this investigation, adverbs of time were among the most frequently used by children

between fourth to ninth grades. Adverbs of manner had a sudden increase in their frequency of occurrence between seventh and eighth grades. Use of adverbs of place remained relatively constant through the years, although not so frequently used as adverbs of time.

APPLICATIONS OF THE RESEARCH

This study was planned as a basis for additional studies of written Spanish language development. Norms have been established for the linguistic variables which best showed a developmental pattern of structural growth and maturity. Educators in bilingual education programs can now use this information to develop units of study and teaching strategies that can help Spanish-speaking students increase their use of syntactic and morphological structures. Furthermore, the information described here can also be used by foreign language teachers to help their non-Spanish speaking students attain a linguistic proficiency comparable to that of native Spanish speakers.

The period of early elementary school years, according to the results of this investigation, seems to be a time when students are learning and experimenting with new lexical, morphological, and structural rules. The knowledge of which linguistic attributes are characteristic of written language maturity in later years can help teachers analyze the progress of syntactic and morphological development in the early school years. Perhaps a continuation of this study to grade 12 and beyond would discover new trends of Spanish written language development as a function of later grades.

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